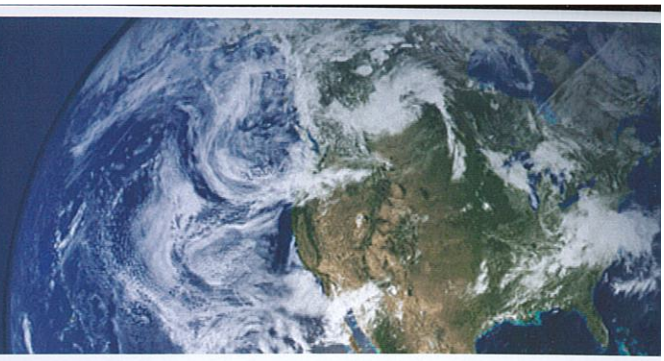
INTERNATIONAL ENVIRONMENTAL SOLUTIONS

WasteToPower.com Turning Waste Problems Into Energy Solutions



Advanced Pyrolytic System® (APS)

The APS developed by IES enables businesses and communities to convert waste to power using the most innovative, cost effective, and environmentally safe technology available in the world. Our proprietary system meets or exceeds the most stringent environmental regulations.

The APS process is simple and straight forward. A **shredder** reduces waste size for optimal processing, and a **dryer** reduces waste moisture content for ideal conversion efficiency. The waste feed and char extrusion **conveyors** provide continuous waste intake and removal of the char byproduct. The **thermal converter** transforms waste to syngas and char through a thermal chemical reaction that involves indirect heat in the absence of oxygen.

Once the waste has been converted to syngas and char, the **thermal oxidizer** ignites and converts the syngas to an oxidized flue gas and "usable heat". Waste heat boilers generate steam from the oxidized gases to feed steam turbine generators that, in turn, produce electricity. The **bag-house and wet scrubber** clean the remaining off gases to ensure compliance with environmental regulations .

The APS converts up to 90% of the waste input into syngas, with the remaining waste extruded as char.

The APS provides key advantages over traditional incineration plants and other conversion technologies. Advantages include continuous production of renewable power, small and flexible footprint, superior environmental performance, small capital investment, easy operation and maintenance, ability to process multiple waste streams, and 3-7 year payback period.

The APS is available in 8, 40, and 125 TPD sizes. The APS can convert to power municipal solid waste (MSW), medical waste, industrial waste, hazardous waste, agricultural waste, animal waste, tires, and sewage. The 125 TPD system produces from 3.0 to 5.0 MW per hour processing MSW. Depending on the calorific value of the waste, the energy output will vary.

The APS can be manufactured off-site and assembled on-site. It is comprised primarily of off-the-shelf parts. The flexible and space efficient design facilitates system scalability to accommodate various waste streams and increasing waste volumes and power requirements.

BENEFITS

- Cost effective
- Environmentally friendly
- Space efficient
- Modular, expandable
- Processes multiple wastes
- Easy to op

BASIC COMPONENTS

- Shredder and Dryer (optional)
- Waste feed and char extrusion conveyors
- Thermal Converter
- Thermal Oxidizer
- Waste heat boilers
- Bag-house and wet scrubber

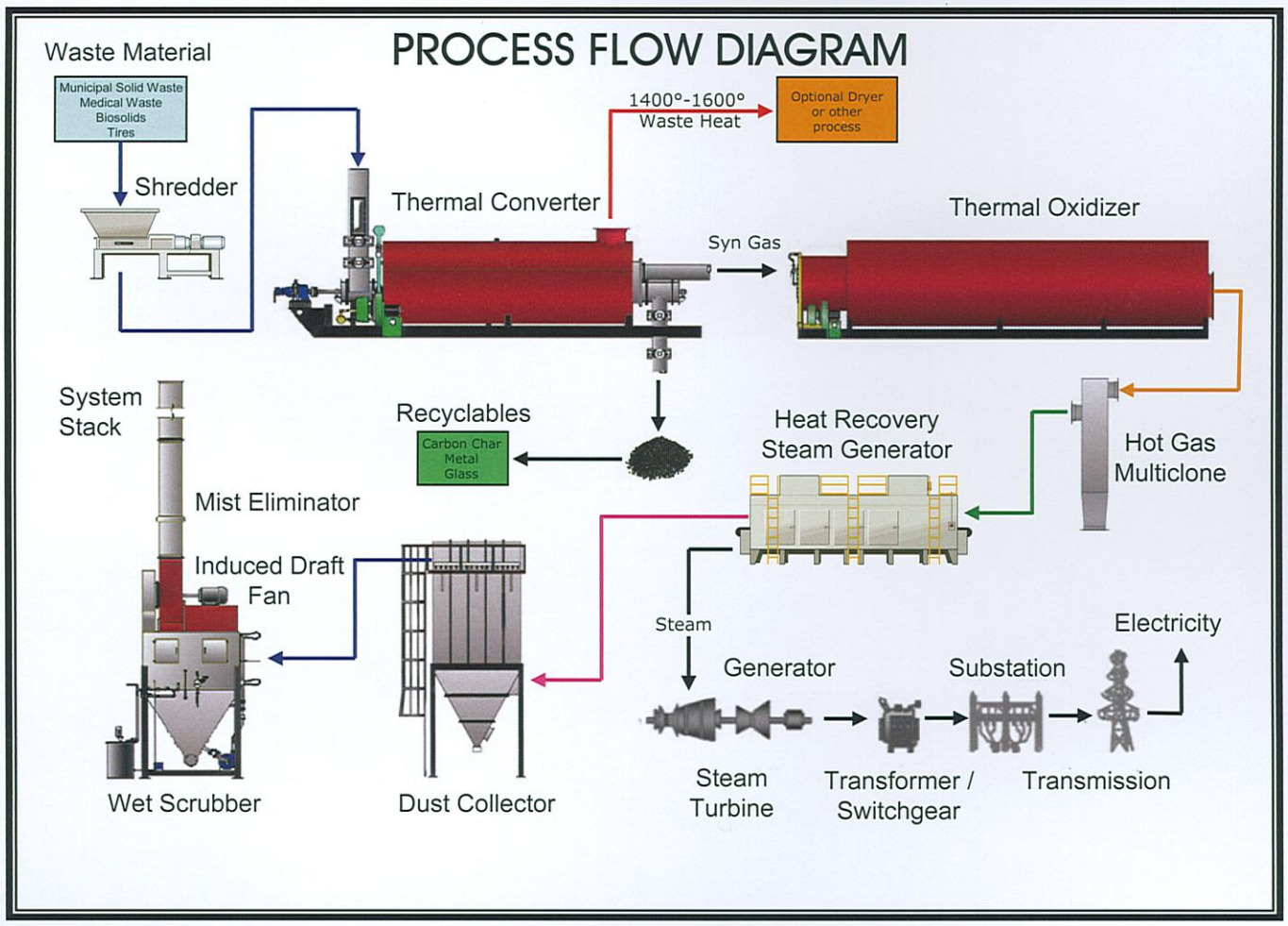
APS

Waste To Power System

25685 Sherman Road,
Menifee, CA 92585
[t] (951)928-5671 [f] (951)928-5672
www.wastetopower.com

INTERNATIONAL ENVIRONMENTAL SOLUTIONS

A Proven Process Demonstrated at Scale




Thermal Converter


Thermal Oxidizer


Wet Scrubber / Dust Collector

25685 Sherman Road Romoland, California 92585
www.wastetopower.com

INTERNATIONAL ENVIRONMENTAL SOLUTIONS

Turning Waste Problems Into Energy Solutions

WasteToPower.com

International Environmental Solutions Corporation (IES):
25685 Sherman Road
Romoland, CA 92585
Telephone: (951) 928-5671
President: Karen Meyer Bertram
Website: www.wastetopower.com

Company Details:
- Originally Founded in June 2000
- Started Marketing Solution – January 2007
- 20 employees (direct and indirect)
- Ownership: Private

Funding:
- Self-funded and private investment
- Increasing Investment for Development, Marketing and Expansion

Product Development Milestones:
- 40Ton System by September 2005
- 8 Ton System by December 2009
- 125 Ton System Second Quarter 2010

Business Model:
- Full service system integrator, manufacturing, facilities management and distribution entity, delivering high value customer benefits
- Project Development JV & Owner/Operator

Target Customers:
- Manufacturing Companies
- Waste Disposal Companies
- Cities, Counties, States, Countries
- Power Companies / Utilities
- Medical Facilities
- Waste Treatment Facilities
- Agricultural Communities
- Hazardous Waste Facilities

Competitive Advantage:
- Fully functioning system
- Proven leading edge technology
- Multiple Solid and Defensible Patents
- EPA testing complete
- Strong Partnerships – Power, Construction, Engineering, and Manufacturing
- Reliable, Sustainable and Safe Design Attribu
- Safety surpass any other pyrolytic processes
- Low Operational Cost
- Flexible Business Model
- Only CT system permitted to operate in California
- Easy to Operate

International Environmental Solutions Corporation is a full service marketing, development, manufacturing, system integrator, and distribution entity currently serving the waste disposal market with high valued solutions and services that can provide environmental benefits along with access to cost effective resource sources such as electricity, water, steam, heat, and bio-fuels. Unlike incineration the Advanced Pyrolysis System allows for waste destruction in an oxygen-free atmosphere, making this system highly efficient with no harmful substances remaining, either in the atmosphere or as a residue.

Problem: The world we live in today is facing a burgeoning crisis situation that requires immediate attention on multiple fronts or the quality of life as we know it today will be reduced dramatically: health, economic, and social impacts. The shortage of low cost energy and clean fresh water combined with the increasing mountains of trash and the environmental destruction of the earth by toxic waste are all causing great alarm.

Value Proposition: IES provides an environmentally safe industrial solution that converts the never ending waste stream (trash) of the world into various forms of cost effective renewable energy: electric power, bio fuels, steam, and heat, while reducing the need for landfills and toxic leaching into ground waters

Market Information: The waste market across the world is greater than $50 billion annually. This number will be increasing due to the increase rate of waste generation and potential fuel sources that can be generated.

Competition: IES is leading the competition in the United States with a working plant that has emissions well below CA standards, the most difficult to pass. Competitors in the US are talking of pilot plants that will be developing their bench model. Competitors desire to produce energy by-products such as ethanol and bio-diesel along with electricity. It is apparent in order for these competitors to be successful they will need to focus on specific feedstock due to the fact that gasifiers work more efficient with consistent waste streams. In Europe the competition has been very varied in its success and has not been reliable on a consistent basis due to marginal implementations

Strategy:
- Leverage the fact that IES has the only thermal converter to be granted a Permit to operate in California.
- Leverage the strong partnerships (power, construction, project management, engineering, and manufacturing)
- Leverage Systems Integration to bring total solution benefits
- Leverage multiple systems on-line in first Quarter 2010

INTERNATIONAL
ENVIRONMENTAL
SOLUTIONS

IES Advanced Pyrolytic System

This is the new design of the IES Advanced Pyrolytic System Recirculating Fuel Gas system, which allows for the reduction of external fuel to maintain the temperature in the thermal converter. This system reconfigures the components of the IES patented technology to optimize operational performance. This new design will be tested at the Renewable Energy Test Center in McClellan Park in Northern California. The system can be seen at the test center where it will be integrated with Algae Bioreactor as pollution control and Carbon Sequestration.

The system will be tested at the center processing multiple waste streams before it is moved to a commercial facility. Each size (8, 40 125 TPD) of the modular IES Advanced Pyrolytic System can be manufactured in either configuration. For more information contact IES at (951) 928-5671 or by email at ies@wastetopower.com.

25685 Sherman Road • Romoland, California 92585
Telephone 951.928.5671 • Facsimile 951.928.5672
ies@wastetopower.com

RENEWABLE ENERGY TEST CENTER

ALGAE BIOREACTOR

Mary Bono Mack, R-Palm Springs, wants government help in pushing for alternative energy sources

08:56 AM PDT on Wednesday, August 20, 2008

By HERBERT ATIENZA
The Press-Enterprise

See Video: Rep. Mary Bono tours a facility that converts waste into clean, renewable energy

The government should not stand in the way of developing new alternative energy sources that could help solve the nation's energy crisis, Rep. Mary Bono Mack, R-Palm Springs, said Tuesday.

"Right now, obviously we've seen the energy crisis; we've seen the high cost of gas at the pump. In California, we're feeling the pain of high electricity prices for quite some time," Bono Mack said. "Whatever technologies are out there, we need to encourage, we need to promote. Free market is going to do a lot of that, but the government also needs to make sure there are no impediments to developing renewable fuels."

Bono Mack made the comments as she went on a tour of the facilities of International Environmental Solutions, an energy generating plant in Romoland that uses technology to convert trash into electricity.

Toby Cole, vice president of operations at International Environmental Solutions, gives Rep. Mary Bono Mack a tour on Tuesday of the facility that uses technology to convert trash into electricity.

She spoke with company officials about what she could do on the federal level to

encourage the development of alternative fuels and pledged to work on legislation to make it happen.

Reached by phone, Julie Bornstein, Bono Mack's Democratic challenger in the Nov. 4 election, said she's not impressed with Bono Mack's tour of the Romoland facility, saying that Bono Mack has been a big supporter of the oil industry.

Bornstein, an affordable-housing advocate from Palm Desert, said she would support giving tax and financial incentives to businesses and consumers who make use of alternative energy.

Bono Mack's spokeswoman, Jennifer May, said the congresswoman's tour of the facility was not a political event. "The congresswoman is supportive of clean alternative energy," May said.

International Environmental Solutions President Karen Bertram said her company would welcome any help to encourage the use of the waste-to-energy technology employed in the plant. Right now, she said, there is limited federal funding available for the technology and no clear-cut regulations that would make it easier to get permits to build such facilities.

International Environmental Solutions makes use of the "pyrolysis" system, which uses high heat to bake rather than burn such things as solid waste and biosolids and use the gases and heat created to generate electricity.

Bertram said the Romoland facility, which opened in 2004, does not use hazardous waste but uses sludge, green waste and other types of trash. She said the facility has all the needed environmental permits and does not create air pollution or health concerns for nearby homes. Bono Mack said she sees a lot of promise in the technology and said the challenge is getting other decision-makers to support its use. "Does this technology qualify as renewable fuel? In my mind it does, but I need to kick it around a little bit further and talk to some folks and get their take on it. But I believe it's a renewable fuel and I think we ought to write a bill that simply says it's a renewable power and this technology should be in line for assistance."

Reach Herbert Atienza at 951-763-3464 or hatienza@PE.com

PRESS RELEASE
CONTACT: Mark Wittenberg or Ben Gibson, (323) 466-3445

October 31, 2007

COUNTY OF LOS ANGELES RELEASES FINDINGS ON NEW ALTERNATIVES TO LANDFILLS

County report finds viable conversion technologies to tackle Southern California's looming trash problem Los Angeles - 36,000 tons per day! That's how much trash is deposited into landfills on a daily basis from Los Angeles County. Within a few short years, many of those landfills will be reaching capacity. This includes the Puente Hills Landfill, currently the largest operating landfill in the United States, which will close in 2013. That leaves Los Angeles with one very large problem.

After years of exhaustive research and evaluation of conversion technology facilities from around the world, the County of Los Angeles has announced the official release of a report summarizing its findings and outlining the next steps in its conversion technology program. In the next year, the County will select one or more projects to be among the first commercial-scale demonstration facilities in the United States, laying the groundwork for a fundamental shift in how the region deals with its garbage.

"Los Angeles County is promoting cutting edge technologies that have been proven effective in Japan, Israel and Europe. Trash doesn't have to be a problem, it can be a resource for clean energy and other marketable products," stated Paul Alva, chair of the County's Alternative Technology Advisory Subcommittee.

Conversion technologies encompass a variety of advanced processes that convert normal household trash into renewable energy, biofuels and useful products. These technologies provide an alternative to landfills by offering a clean and safe way to turn residual trash (which cannot be recycled economically) into a valuable resource. "Through first hand evaluations of operational facilities in Europe, Israel, and Japan, we have found that conversion technologies are viable and environmentally friendly means of managing our solid waste," said Alva. "These technologies offer real solutions to California's waste and energy crises."

The report identifies four viable technologies that are capable of managing Southern California's residual waste in a cost-effective and environmentally sound manner. In addition, the report identifies four recycling facilities where a conversion technology facility could be co-located. The County will request that these "short-listed" technology developers and recycling facilities form partnerships and submit formal proposals to be among the first commercial-scale conversion technology demonstration facilities in the United States. Early next year, a competitive bid process will determine which project will receive the County's support. A final decision will be announced by mid-2008.

The technology finalists are:
- Arrow Ecology (anaerobic digestion)
- **International Environmental Solutions (pyrolysis)**
- Interstate Waste Technologies (gasification)
- Ntech Environmental (gasification).

The site finalists are: Del Norte Regional Recycling and Transfer Station (Oxnard); Perris MRF/Transfer Station (Perris); Rainbow Disposal (Huntington Beach); and Robert A. Nelson Transfer Station and MRF (Rubidoux). In conjunction with the report's release, the County has launched a new and improved conversion technology Web site. The report and other information about conversion technologies and California's waste challenges are available at www.SoCalConversion.org.

The mission of the Southern California Conversion Technology Demonstration Project is to evaluate and promote the most promising conversion technologies from around the globe, and work with communities throughout the region to develop demonstration facilities that showcase the technical, economic and environmental viability and benefits of conversion technologies.

For more information, please contact Mark Wittenberg or Ben Gibson at (323) 466 3445 or visit www.SoCalConversion.org.

CITY OF MOUND BAYOU
Office of the Mayor
Kennedy V. Johnson

January 22, 2010

Karen Bertram, President
International Environmental Solutions
25685 Sherman Road
Romoland, California 92585

Ms. Bertram,

I am very excited to be writing you this letter. I have been meeting with your ambassador, James Hinkle of As-1 International, Inc. here in my office since he recently arrived here in our city, Mound Bayou Mississippi. As you are now well aware, Mound Bayou is a city founded in 1887 that holds the dubious distinction of being the oldest all African American populated settlement in the United States. The history of the people that make up our proud city makes us so very unique in many, many ways.

It is for that and several other reasons, too many to mention here, that I express to you the enthusiasm I hold for Mound Bayou to be a partner with you in the installation of a facility to handle our waste in this most unique fashion of Conversion Technology. I am also most confident that the relationship we hold with several of our neighboring communities will allow us to be the location of choice to handle their waste disposal needs.

In our plans to raise Mound Bayou once again to a community of pinnacle prosperity, especially in the current state of our national economy, this will have every possibility of establishing a new standard in addressing the managing of waste by cities and towns across this nation as we all are concerned about the status of our planet and its resources. For this, I as Mayor, extend my hand to you that we are ready and willing to forge ahead and make a home for your technology as a cornerstone to our own Community Redevelopment Master Plan slated to commence here in 2010. Not to mention the anticipated positive impact a decision of this type of forward thinking will have on us by others within our State.

I look forward to our continuing discussions, planning sessions and your eventual visit to our fine community.

Thank you,

Kennedy V. Johnson
Mayor

"Jewel of the Delta"
106 South Green Avenue • P.O. Box 680 • Mound Bayou, MS 38762 • Tel: (662) 741-3073 • Fax: (662) 741-2195
mayorjohnson2001@yahoo.com

The Central Peace Signal (Rycroft)
Tuesday, December 15, 2009

An expansion of Bay Tree Loggin Ltd. will utilize wind and waste to power their sawmill.

Golden Sheep Power is working with bay Tree Loggin by utilizing wind power and waste power to combat the excess waste to power needed for the expansion of the sawmill. "We are looking to produce 12 Megawatts of power an hour and decrease carbon dioxide by removing the current diesel system right out of the sawmill," said Amy Kennaway of Golden Sheep Power. "We are also looking to reduce the need to use the landfills with excess waste from the expansion of the sawmill. The waste will be turned into electricity as well as a by-product called biochar which can be used for fertilizer, oil reclamation sites or used within asphalt."

Golden Sheep and Bay Tree Loggin are going with two wind turbines which are being supplied by Enercon, a company that has been in operation since 1984. They have over 14,500 turbines installed in over 30 countries all over the world. The turbines will be similar in size to the turbines on Bear Mountain near Dawson Creek. Enercon is the only company that has turbines north of Calgary and they put them through a rigorous test. "They are made for our harsh winters," said Jamie Hallett of Golden Sheep power. "One of their test sites is in the Antarctica."

The Advanced Pyrolytic System (APS) that takes the excess wood waste and converts it to steam to produce power is quite a unit. They are working with ***International Environmental Solutions*** to install this equipment that is 99 percent efficient. "It is a complete system that is self-contained with no leakage of steam or smell," noted Kennaway.

The by-product of this, called biochar, will be used mainly for fertilizer and within asphalt. "The whole system is designed to be recyclable, "noted Hallett.

The two made a presentation to Saddle Hills County and will keep them updated on their progress once they get going on the expansion of the sawmill.

FOR IMMEDIATE RELEASE

Contact: Public Relations
The Economic Report
(954) 312-0499

"The Economic Report" show to feature International Environmental Solutions

December 12, 2009, Deerfield Beach, FL – The producers of **The Economic Report** are pleased to announce that *International Environmental Solutions* will be featured in an upcoming segment on *Renewable Energy Solutions for the 21st Century* as part of the show's series of segments on *Environmental Impacts.*

The shortage of low cost energy and clean fresh water combined with an increasing amount of trash and the environmental destruction of the earth by toxic waste are causing concern among people and governments.

According to the U.S. Environmental Protection Agency, residents, businesses, and institutions produced more than 251 million tons of municipal solid waste (MSW) in 2006, or approximately 4.6 pounds of waste per person, per day. Meanwhile, the number of landfills across the nation is steadily decreasing—from 8,000 in 1988 to just 1,754 in 2006. With existing landfill sites being depleted, municipal waste has to be shipped farther and farther away to new landfill sites, increasing costs as much as ten-percent or more annually in many markets.

Providing a viable and environmentally-friendly alternative to waste disposal, International Environmental Solutions (IES) has developed a "waste-to-energy" system known as the Advanced Pyrolytic System. Pyrolysis is a process that chemically decomposes organic materials by heat in the absence of oxygen and typically occurs at operating temperatures above 430 °C.

Instead of land filling or incinerating municipal solid waste (MSW) and other industrial waste streams, the IES Advanced Pyrolytic System utilizes household garbage, glass, yard waste, oil waste, sludge/biosolids, plastics, paints, medical waste, contaminated soils, and tires to produce clean, renewable energy.

Unlike incineration, which produces fly ash, the Advanced Pyrolytic System has very low emissions with no harmful substances remaining, either in the atmosphere or as a residue. Over 99% of the waste processed is converted to energy and other saleable by-products.

"Waste does not have to be a liability. In fact, it is a valuable resource. Our society has made waste a liability because of the way we have chosen to handle our waste disposal," says Karen Meyer Bertram, President of International Environmental Solutions. "The IES Advanced Pyrolytic System serves dual purposes in helping to address the growing world wide problem of waste disposal, while utilizing the waste product to generate energy in the form of electricity for the surrounding communities."

If you would like more information about International Environmental Solutions, please visit their website at www.wastetopower.com.

Romoland plant on cutting edge of turning trash into electricity

10:39 PM PDT on Tuesday, June 10, 2008
By JENNIFER BOWLES The Press-Enterprise
Video: Inland company converts waste to energy
(http://www.pe.com/video/index.html?nvid=253421

On a corner in Romoland not far from the bustle of Interstate 215, a rag-tag crew has assembled from the ground up a plant that observers say will be the nation's first working example of an oxygen-deprived technology that turns trash into electricity.

Crew members have used motors from a power plant they helped disassembled on an Indian reservation, bought boilers from an old factory in Riverside, and pulled underground tanks found at the site to forge a maze of cylinders, scrubbers and a conveyer belt.

"We bought a lot of stuff we could get from salvage to build this plant so we could afford it," said Karen Bertram, president of International Environmental Solutions Corp. "We actually recycled a lot of stuff."

Essentially, the "pyrolysis" system decomposes trash at high temperatures without oxygen and turns it into carbon char residue. That process releases gas that generates heat, which then creates steam to power turbines that generate electricity.

Although regulatory hurdles remain, many experts and observers agree the technology being developed by the company on 8.5 acres in the town north of Temecula holds promise. The idea would be to then build larger plants elsewhere, Bertram said.

During a recent tour of the operation, Bertram gestured toward to a pile of shredded waste about to be swallowed by the humming machinery. "If you put diapers in a landfill, it takes five years to degrade," she said. "We do it in 20 minutes."

At the end of the process, the machinery coughs out pellets of charred carbon -- what's left of the diapers and the rest of the trash. "We believe in reduce, recycle and reuse -- and then this," Bertram said. "There's no such thing as zero waste, but we can reserve the energy of what's left. "Once turbines are installed at the site, there will be enough electricity coming from the heat-generated steam to start producing electricity, Bertram said.

Looking for Success

The technology being developed by International Environmental Solution has caught the attention of officials in Los Angeles County. Officials there are looking for remedies for diminishing landfill space and the need to transport trash elsewhere, said Coby Skye, an associate civil engineer for the Sanitation Districts of Los Angeles County.

The county evaluated hundreds of companies that use various technologies to get rid of trash before narrowing the field to four -- including Bertram's company. "As we have less capacity for landfill disposal and energy costs rise, these technologies increase in value, and makes these much more economically valuable," he said.

Skye said a number of factors put International Environmental Solutions on the short list. The technology has been tested on municipal solid waste, and the company had solid data on emissions and the amount of energy that can be generated, he said."They had to meet very stringent criteria in terms of their environmental performance and economic stability in order for them to make the cut," he said.

The county has an Aug. 15 deadline for those four companies to submit a site-specific proposal in Southern California, Skye said. Bertram said her proposal will involve the Robert A. Nelson Transfer Station in Riverside, where her company would build a pilot pyrolysis operation.

Besides Los Angeles County, officials in Riverside County and as far away as Turkey are keeping on an eye on the company's progress as it navigates the permit process in a region known for stringent air-quality rules. Other companies using the same technology have built plants in Japan and Europe.

"If you can build it here in the South Coast Air Quality Management District, you can probably build it anywhere," said Hans Kernkamp, general manager and chief engineer for Riverside County's Waste Management Department. Kernkamp said Riverside County had initial talks of using a waste-to-energy technology at the Edom Hill transfer station, east of Desert Hot Springs. Bertram's company was on the short list until the project fell by the wayside, he said. Although Kernkamp thinks the technology needs to be proved on a larger scale, he said he hopes Bertram's company gets chosen by Los Angeles County. "They're the home team ... and we'd like to see them be successful," he said.

An Experiment

The eight people who work at International Environmental Solutions are led by Bertram, formerly a corporate attorney in Texas who now drives her hybrid Toyota Prius from Orange County to Romoland.Work started in 1999, but with a different purpose: to reactivate carbon so it could be used again to rid water of certain chemicals. Bertram turned to the trash business after a large competitor built a carbon-reactivation plant and cornered the market, she said.

It began a few years ago, she said, when folks from the California Integrated Waste Management Board and UC Riverside's Bourns College of Engineering asked Bertram to consider converting the reactivated carbon system into a pyrolytic conversion plant because they wanted to see how well it would work. Plus, Bertram realized how many landfills were about to close and how the system could produce renewable energy.

"We did it and we found out we did it well. But I didn't think it would be this big," she said, noting that the process can take care of not only typical household trash, but also medical waste, tires, horse manure and hazardous waste.

Big Need, Small Steps

Folks from horse-friendly Norco took a tour of the Romoland plant recently to see if the process could be used to turn the town's ample supply of manure into carbon char. A study is under way to determine if a pyrolysis system built by International Environmental Solutions could be located at Norco's sewage treatment plant, and also power it, thereby saving the city $1 million, Mayor Frank Hall said. The study should be completed in the next two months, he said.

Both Kernkamp and Skye said the so-called waste conversion technologies such as pyrolysis have a drawback in that the state wouldn't give cities credit for keeping the trash out of landfills. State law requires cities to keep 50 percent of trash from ending up in landfills, and most of it is done through recycling.

Fernando Berton, manager of research and applied technology for the California Integrated Waste Management Board, said that's the way the law was written.